

HALBY CHEMICAL SITE
ADMINISTRATIVE RECORD FILE *
INDEX OF DOCUMENTS

I. SITE IDENTIFICATION

1. Report: A Preliminary Assessment of Halby Chemical Co., Emergency and Remedial Response Information System, prepared by Delaware Department of Natural Resources and Environmental Control (DNREC), 12/83. P. 100001-100027.
2. Report: Site Inspection of Halby Chemical Company, prepared by NUS Corporation, 1/10/85. P. 100028-100205.
3. DNREC Technical Services Section, Request for Laboratory Analysis for log numbers 833 to 840, 3/21/85. P. 100206-100212. The following are attached:
 - a) an Analysis Request form for sample numbers 833;
 - b) a Request for Laboratory Analysis from for log number 842;
 - c) an Analysis Request form for sample number 842;
 - d) a map of Wilmington;
 - e) a Request for Laboratory Analysis results for sample number 841;
 - f) an Analysis Request form for sample number 841.
4. Report: Documentation Records for Hazard Ranking System, prepared by U.S. EPA, 4/25/85. P. 100213-100388.
5. Letter to Mr. Jay Murphy, Delaware Contracting Company, from Mr. Glenn K. Elliott, Duffield Associates, Inc., re: Review comments on the Preliminary Hydrogeologic Investigation report, 6/18/85. P. 100389-100415. The following are attached:

* Administrative Record File available 7/21/89, updated 4/19/91, 6/27/91, 10/16/91, and 2/24/92.

- a) Table I, Well Construction & Stratigraphy;
 - b) Table II, Groundwater Level Elevation Data;
 - c) Table III, Groundwater Quality Data;
 - d) Figure I, Location Sketch Observation Well;
 - e) Figure II, Location Plan;
 - f) Figure III, Stratigraphic Profile;
 - g) Figure IV, Piezometric Level (7 January 1985) map;
 - h) Figure V, Piezometric Level (13 June 1985) map;
 - i) Figure VI, Piezometric Level (7 January 1985) map;
 - j) Figure VII, Piezometric Level (13 June 1985) map;
 - k) three Stratigraphic Logs;
 - l) six Boring Logs.
6. Letter to Mr. John J. Casey, Jr., City of Wilmington, from Mr. James F. Duffield, Duffield Associates, Inc., re: Proposal for a Hydrogeologic Reconnaissance of the bulk storage areas at the site, 1/8/86. P. 100416-100426.
- a) a Cost Estimate Summary;
 - b) a Rate Schedule;
 - c) a General Contract Conditions;
 - d) a Supplemental General Contract Conditions.
7. State of Delaware Application for a Permit to Drill a Well, 1/22/86. P. 100427-100434. Well Completion Reports for permit numbers 63869 to 63874 and an Area Sketch are attached.
8. Report: I-495 Bulk Storage Area Hydrogeologic Reconnaissance, prepared by Duffield Associates, Inc., 4/17/86. P. 100435-100452.

* Administrative Record File available 7/21/89, updated 4/19/91, 6/27/91, 10/16/91, and 2/24/92.

9. Letter to Mr. John J. Casey, Jr., City of Wilmington from Mr. James F. Duffield, Duffield Associates, Inc., re: Results of the supplemental analysis of ground water samples from the bulk storage area, 8/4/86. P. 100453-100457. Two Ground Water Quality Monitoring Tables are attached.
10. Letter to Mr. R.G. Shockley, Brandywine Chemical Company, from Mr. Garth Glenn, NUS Corporation, re: Receipt of letter, 9/3/86. P. 100458-100459. A letter regarding a series of samples taken at the Old Halby Chemical Plant, dated August 21, 1986, is attached.
11. Letter to Mr. Christopher J. Corbett, U.S. EPA, from Mr. Joseph J. Hardman, DNREC, re: Transmittal of the Preliminary Hydrogeologic Investigation, 4/14/87. P. 100460-100492. The report is attached.
12. Letter to Mr. Leonard Nash, U.S. EPA, from Mr. Joseph J. Hardman, DNREC, re: Transmittal of the soil test results, 6/25/87. P. 100493-100507. A report entitled "Department of Transportation Review Section of Terminal Avenue Project" is attached.

II. REMEDIAL ENFORCEMENT PLANNING

1. Letter to Mr. Bob Shockley, Brandywine Chemical Company, from Mr. Stephen R. Wassersug, U.S. EPA, re: Notification of Potential Liability, 4/17/86. P. 200001-200004. A certified mail receipt is attached.
2. Letter to Mr. Nirmal Jala, Argus Chemical Corporation, from Mr. Stephen R. Wassersug, U.S. EPA, re: Notification of Potential Liability, 4/17/86. P. 200005-200008. A certified mail receipt is attached.
3. Letter to Mr. William Wishnick, Witco Chemical Company, from Mr. Stephen R. Wassersug, U.S. EPA, re: Notification of Potential Liability, 4/17/86. P. 200009-200012. A certified mail receipt is attached.
4. Letter to U.S. EPA, from Mr. R.G. Shockley, Brandywine Chemical Company, re: Response to the 104(e) inquiry, 5/12/86. P. 200013-200015. A letter regarding the confirmation of a meeting between EPA and Witco/Argus Corporation and an envelope are attached.
5. Letter to Mr. Steve Miano, U.S. EPA, from Mr. William C. Grabarek, Witco Corporation, re: Witco Corporation's decision not to accept EPA's invitation to conduct a company sponsored RI/FS at the site, 7/23/86. P. 200016-200017. An envelope is attached.

III. REMEDIAL RESPONSE PLANNING

1. Report: Work Plan and Field Operations Plan for Phase I Remedial Investigation at Halby Chemical Site, New Castle County, Delaware, prepared by Advanced Engineering and Planning Corporation (AEPCO), Inc., 10/3/88. P. 300001-300115.
2. Memorandum to Mr. Darius Ostrauskas, U.S. EPA, from Ms. Diana Baldi, U.S. EPA, re: Review comments on the Workplan and the Field Operations Plan, 11/30/88. P. 300116-300117. A memorandum regarding review of the Workplan and the Field Operations Plan, dated November 28, 1988, is attached.
3. Report: Preliminary Health Assessment for Halby Chemical, Wilmington, Delaware, prepared by Agency for Toxic Substances and Disease Registry (ATSDR), 1/4/89. P. 300118-300122.
4. Letter to Mr. Christopher J. Corbett, U.S. EPA, from Mr. Joseph J. Hardman, PADER, re: The preliminary Hydrogeological Investigation report, 4/14/87. P. 300123-300155. The report is attached.
5. Report: Final Work Plan Remedial Investigation and Feasibility Study, Halby Chemical Site, New Castle County, Delaware, prepared by EBASCO Services Incorporated, 11/4/87. P. 300156-300289.
6. Letter to Mr. Darius Ostrauskas, U.S. EPA, from Mr. Bradley A. Hilton, AEPCO, Inc., re: Phase II surficial soil work plan, 7/20/89. P. 300290-300298.
7. Memorandum to Mr. Darius Ostrauskas, U.S. EPA, from Mr. Richard L. Brunker, U.S. EPA, re: Review of sediment analytical results, 9/29/89. P. 300299-300300.
8. Letter to Ms. Paula Retzier [sic], U.S. EPA, from Mr. Bradley A. Hilton, AEPCO, Inc., re: DNREC's concerns about the aquifer testing, 12/13/89. P. 300301-300310. A Preliminary Groundwater Elevations table, three Groundwater Monitoring Location Maps, and two monitoring well profile diagrams are attached.
9. Letter to Ms. Paula L. Retzler, U.S. EPA, from Mr. Thomas S. Anderson, DNREC, re: Summarization of a January 5, 1990 meeting concerning hydraulic communications, 1/11/90. P. 300311-300311.

10. Letter to Mr. Bradley A. Hilton, AEPCO, Inc., from Ms. Paula L. Retzler, U.S. EPA, re: Response to proposed pump test, 2/6/90. P. 300312-300312.
11. Report: Quality Assurance Project Plan for Performance of Treatability Studies on Environmental Samples from the Halby Chemical Site, Wilmington, Delaware, Draft, prepared by PEI Associates, Inc., 3/90. P. 300313-300460.
12. Letter to Ms. Paula Retzler, U.S. EPA, from Mr. Thomas S. Anderson, DNREC, re: DNREC's comments on the draft Remedial Investigation, 3/16/90. P. 300461-300467. Halby Chemical RI Comments are attached.
13. Letter to Mr. Frank Tsang, EBASCO Environmental [sic], from Ms. Paula Retzler, U.S. EPA, re: Transmission of partial review comments on the draft Remedial Investigation (RI) and Risk Assessment (RA) reports, 4/5/90. P. 300468-300487. Attachment A, Partial EPA Review Comments, and Attachment B, PEI Associates Review Comments, are attached.
14. Letter to Ms. Paula Retzler and Ms. Roberta Riccio, U.S. EPA, from Ms. Alyce T. Fritz, National Oceanic and Atmospheric Administration (NOAA), re: Review comments on the draft RI, 4/5/90. P. 300488-300493.
15. Letter to Ms. Paula Retzler, U.S. EPA, from Mr. Thomas S. Anderson, DNREC, re: Comments on the draft Public Health Evaluation, 4/5/90. P. 300494-300495.
16. Memorandum to Ms. Paula Retzler and Ms. Roberta Riccio, U.S. EPA, from Mr. Richard L. Brunner, U.S. EPA, re: Review of the Risk Characterization study, 4/9/90. P. 300496-300497.
17. Memorandum to Mr. Harry Compton, U.S. EPA, from Mr. Dan deBruijn, Roy F. Weston, Inc., re: Trip report summary, 4/26/90. P. 300498-300519. The following are attached:
 - a) Table 1, XRF Results for Halby Chemical;
 - b) Figure 1, Halby Chemical;
 - c) Figure 2, Halby Chemical Sample Locations;

- d) Appendix A, Halby Chemical Trip Report, April 1990;
 - e) information on Thiocyanates and thiocyanic acid.
18. Memorandum to Mr. Richard Brunner, U.S. EPA, from Mr. Peter Ludzia, U.S. EPA, re: Request for review of a letter, 5/1/90. P. 300520-300524. A letter regarding the Risk Assessment and clean up level estimations, dated April 27, 1990, and a Halby Chemical Soil Cleanup Level, Arsenic, Direct Contact and Ingestion table, are attached.
 19. Report: Analytical Report, prepared by Roy F. Weston, Inc., 5/18/90. P. 300525-300538.
 20. Letter to Ms. Roberta Riccio, U.S. EPA, from Ms. Jane F. Biggs, DNREC, re: List of the ARARs identified for the State of Delaware for use in review of the Surface Water Quality Standard study, 6/14/90. P. 300539-300540. The list of Delaware State ARARs is attached.
 21. Letter to Ms. Roberta Riccio, U.S. EPA, from Mr. Frank Tsang, EBASCO Services Incorporated, re: Analysis of ground water data, 7/13/90. P. 300541-300546. A contaminant table analysis and Appendix A, Calculation of Potential Surface Water Contamination by Groundwater Flow, are attached.
 22. Letter to Ms. Roberta Riccio, U.S. EPA, from Mr. Tim Silar, EBASCO Services Incorporated, re: Review of the findings of the U.S. Geological Survey's investigation of tidal effects on shallow ground water movement, 7/31/90. P. 300547-300547.
 23. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Ms. Diane Wehner, Mr. Bob Davis, and Mr. Ron Preston, U.S. EPA, re: Recommendation for additional sampling to further evaluate wetlands, 8/9/90. P. 300548-300548.
 24. Report: Final Public Health Evaluation, Halby Chemical Company Site, Wilmington, DE, prepared by EBASCO Services Incorporated, 9/90. P. 300549-300954.
 25. Report: Appendices A through D, Volume II, Final RI Report for the Halby Chemical Site, New Castle County, Delaware, prepared by EBASCO Services Incorporated,

9/12/90. P. 300955-301272.

26. Report: Appendices E through M, Volume III, Final RI Report for the Halby Chemical Site, New Castle County, Delaware, prepared by EBASCO Services Incorporated, 9/12/90. P. 301273-301525.
27. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Ms. Diane E. Wehner, re: Response to a request for assistance in establishing clean-up levels, 9/24/90. P. 301526-301526.
28. Report: Volume I Preliminary Final Remedial Investigation Report, Halby Chemical Site, New Castle County, Delaware, prepared by EBASCO Services Incorporated, 9/28/90. P. 301527-301848.
29. Report: Revised Quality Assurance Work Plan, prepared by Roy F. Weston, Inc., 12/90. P. 301849-301867.
30. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Ms. Diane Whener, Mr. Bob Davis, and Mr. Ron Preston, U.S. EPA, re: Additional sediment sampling and toxicity testing recently completed at the site, 2/14/91. P. 301868-301868.
31. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Mr. Richard L. Brunner, U.S. EPA, re: Results of calculated risks and hazards from exposures to individuals who work at the operating facility on the Halby Chemical Facility, 2/15/91. P. 301869-301872. Table 1, Calculated Cancer Risks from Exposures to Arsenic and PAHs in the Industrial Work Place at the Halby NPL Facility, is attached.
32. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Ms. Diane Wehner, Mr. Bob Davis, and Mr. Ron Preston, U.S. EPA, re: Recommendations for the remediation of wetland sediments in the lagoon and for further investigation of the need for remediation of the lower marsh area, 3/7/91. P. 301873-301873.
33. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Ms. Diane K. Wehner, NOAA, re: Review of and comments on the preliminary results of additional chemical analysis and toxicity tests performed on lagoon and marsh sediments, 3/27/91. P. 301874-301876.
34. Memorandum to Ms. Roberta Riccio, U.S. EPA, from Ms.

- Bernice Pacquini, U.S. EPA, re: Review of the letter from EBASCO Services Incorporated dated July 13, 1990 concerning the concentration of contaminants, 4/11/91. P. 301877-301877.
35. Memorandum to Ms. Paula Retzler and Ms. Roberta Riccio, U.S. EPA, from Mr. Ronald Preston, Ms. Alyce Fritz, and Mr. Robert Davis, U.S. EPA, re: Review of the pre-RI data package, (undated). P. 301878-301879.
 36. Report: A Biological Assessment of the Halby Chemical Company Superfund Site, New Castle County, Delaware, prepared by U.S. Fish and Wildlife Service, (undated). P. 301880-301961.
 37. Letter to Mr. Tom Anderson, DNREC, from Ms. Roberta Riccio, U.S. EPA, re: Summary of a December 27, 1989 meeting concerning the status and future plans for work at the site, (undated). P. 301962-301964. A list of meeting attendees is attached.
 38. Report: Final Feasibility Study Report Operable Unit No. 1(OU-1), prepared by NUS Corporation, 4/91. P. 301965-302234.
 39. Report: Analytical Chemistry and Solid Phase Toxicity Bioassay on the Halby Chemical Company Superfund Site, New Castle County, Delaware, prepared by U.S. Fish and Wildlife Service and U.S. EPA, 4/91. P. 302235-302528.
 40. U.S. EPA Proposed Remedial Action Plan, Halby Chemical Site, 4/91. P. 302529-302553.
 41. Letter to Ms. Roberta Riccio, U.S. EPA, from Ms. Jane Biggs, DNREC, re: DNREC's comments on the Feasibility Study, 4/8/91. P. 302554-302565.
 42. Letter to Ms. Roberta Riccio, U.S. EPA, from Ms. Jane Biggs, DNREC, re: DNREC's additional comments on the Feasibility Study, 4/15/91. P. 302566-302577. A copy of the Hazardous Waste Consultant is attached.
 43. Letter to Ms. Roberta Riccio, U.S. EPA, from Ms. Jane Biggs, DNREC, re: DNREC's comments on the Proposed Plan, 4/16/91. P. 302578-302582. A memorandum regarding concerns about the Proposed Plan, dated May 13, 1991, is attached.
 44. Letter to Ms. Roberta Riccio, U.S. EPA, from Mr. Robert

E. Roller, Witco Corporation, re: Comments on the Feasibility Study and the Proposed Remedial Action Plan, 5/31/91. P. 302583-302629. A report entitled "Comments on the Feasibility Study Report and proposed Remedial Action Plan for the First Operable Unit," the Final Remedial Investigation Report, and Attachment A, Comments, Halby Chemical Company, Volume I, are attached.

45. Letter to Ms. Roberta Riccio, U.S. EPA, from Ms. Jane Biggs, DNREC, re: DNREC's comments on the Proposed Plan, 6/3/91. P. 302630-302631.
46. Letter to Ms. Roberta Riccio, U.S. EPA, from Mr. William F. Morgan, Richards, Layton & Finger, re: Comments on the Record of Decision, 6/3/91. P. 302632-302635.
47. Memorandum to Ms. Paula Retzler, U.S. EPA, from Mr. Richard L. Brunker, U.S. EPA, re: Risk-based hazard indices for soil contaminants at the process plant area of the Halby facility, 6/24/91. P. 302636-302653. The following are attached:
 - a) Soil Contaminants of Concern;
 - b) Table 1, Noncarcenenogenic Toxic Health threats Hazard Quotient and Hazard Index Calculations;
 - c) Table 2, Incremental Cancer Risk, The Incidental Oral Exposure Route;
 - d) Table 3, Incremental Cancer Risk, Single High PAH Soil Contamination Finding;
 - e) Table 4, Incremental Cancer Risk, PAH Uptake from the Dermal Absorption Pathway;
 - f) Table 5, Incremental Cancer Risk from the Inhaled Airborne Particulate Pathway;
 - g) Table 6, Future Cancer Risks from Arsenic Cancer Risks from Buried Arsenic;
 - h) Table 7, Future Cancer Risks from the Inhalation of Airborne Arsenic;
 - i) Table 8, Noncarcenenogenic Threats from

Exposure to Arsenic-Contaminated Soils.

48. Record of Decision, Halby Chemical Site, New Castle County, DE, 8/12/91. P. 302654-302771.
49. Report: Treatability Study Report for Contaminated Soils and Sediments, the Halby Chemical Site, Wilmington, Delaware, prepared by PEI Associates, Inc., 10/90. P. 302772-303089.

IV. REMOVAL RESPONSE PROJECTS

1. Memorandum to Mr. Robert Caron, U.S. EPA, from Mr. Greg Janiec, U.S. EPA, re: Sampling and site assessment summary, 3/28/85. P. 400001-400027. The following are attached:
 - a) a location map;
 - b) six photographs of the site;
 - c) a memorandum regarding the review of analysis of two water and two soil samples, dated April 19, 1985;
 - d) a Halby Chemical TAT Region III Summary Report;
 - e) a Halby Chemical Analytical Results table;
 - f) a memorandum regarding the laboratory charges for sample analysis, dated April 16, 1985;
 - g) a Halby Chemical Site TAT Region III Summary Report;
 - h) a memorandum regarding additional laboratory charges, dated April 18, 1985;
 - i) the Gas Chromatography/Mass Spectrometry (GC/MS) Fraction Volatile Compounds Sample Data for RFW Numbers 8503-348-0010, 8503-348-0020, 8503-348-0030, 8503-348-0040, 8503-348-0050;
 - j) a concentration sampling table;
 - j) a Sample Location Map;
 - k) six Sample Data Summary sheets;
 - l) a Record of Communication regarding information needed to document the Hazard Ranking Score (HRS), dated April 18, 1985;
 - m) a site map.
2. Letter to Mr. Harold G. Byer, U.S. EPA, from Mr. Garth Glenn, NUS Corporation, re: Comments on sampling

results, 9/3/86. P. 400028-400029.

3. Memorandum to Mr. Douglas Fox, U.S. EPA, from Mr. Michael Wilson, U.S. EPA, re: Summary of a site visit, 10/5/87. P. 400030-400065. The following are attached:

- a) a TAT Sample Locations Map;
- b) a Certificate of Laboratory Analysis for sample numbers W-01, S-01, S02, and S03;
- c) information concerning a discussion of findings at the site;
- d) a Sample Data Summary Package cover sheet;
- e) a Water Surrogate Recovery Summary for case number SAS 3364C;
- f) an Organic Analysis Data Sheet for sample identification numbers W01, S01, S02, and S03;
- g) a Method Blank Summary;
- h) Organic Analysis Data Sheets for sample numbers 1007D and 1007B;
- i) Organics Traffic Reports for sample numbers, CB158, CB161, and CB189.

4. Letter to Mr. Doug Fox, U.S. EPA, from Mr. Joseph J. Hardman, DNREC, re: Bore hole results, 10/5/87. P. 400066-400078. The following are attached:

- a) two copies of Figure 1, Boring Locations Map;
- b) a memorandum regarding Halby Chemical Trip Report, dated October 5, 1987;
- c) a TAT Sample Location Map;
- d) a Certificate of Laboratory Analysis Sample for identification numbers W-01, S-01, S-02, and S-03;
- e) information concerning a discussion of

findings at the site;

- f) a Organic Analysis Data Sheet for sample numbers W01.

V. COMMUNITY INVOLVEMENT/CONGRESSIONAL CORRESPONDENCE/IMAGERY

1. Report: Final Community Relations Plan for Halby Chemical Site, New Castle County, Delaware, prepared by EBASCO Services Incorporated, 8/30/88. P. 500001-500021.
2. Report; Draft Final Community Relations Plan, Halby Chemical Site, prepared by NUS Corporation, 4/91. P. 500022-500048.
3. Transcript of the public meeting, Halby Chemical Superfund Site, 5/2/91. P. 500049-500099.

SITE SPECIFIC GUIDANCE DOCUMENTS INCLUDED

1. Superfund Treatability Study Protocol: Solidification/
Stabilization of Soils Containing Metals Phase II
Review Draft, prepared by U.S. EPA, (undated).